


aLOINC Order Code Initiative Update

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**CLIAC Meeting
April 15, 2015
Atlanta, Georgia**

Topics

- **Using LOINC - Demonstration**
- **Standards & Interoperability Framework Initiative – *a*LOINC Order Code**
- **Key Deliverables**
- **Data Reviewed**
- **Data Analysis**
- **Lessons Learned**
- **Summary of Preliminary Recommendations**
- **Next Steps**

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LOINC	LongName	Component	Property	Timing	System	Scale	Method	ex
39802-4	Creatinine in dialysis fluid/Creatinine in serum or plasma	Creatinine dial fld/Creatinine ser_plas	RelRto	Pt	Dial fld+Ser/Plas	Qn		m
44909-0	5-Hydroxyindoleacetate and Creatinine [interpretation] in Urine	5-Hydroxyindoleacetate & Creatinine	Imp	Pt	Urine	Nom		
44288-9	5-Hydroxyindoleacetate/Creatinine [Mass Ratio] in 24 hour Urine	5-Hydroxyindoleacetate/Creatinine	MRto	24H	Urine	Qn		m
11145-0	5-Hydroxyindoleacetate/Creatinine [Mass Ratio] in Urine	5-Hydroxyindoleacetate/Creatinine	MRto	Pt	Urine	Qn		m
47545-9	5-Hydroxyindoleacetate/Creatinine [Molar ratio] in 24 hour Urine	5-Hydroxyindoleacetate/Creatinine	SRto	24H	Urine	Qn		ur In
29520-4	5-Hydroxyindoleacetate/Creatinine [Molar ratio] in Urine	5-Hydroxyindoleacetate/Creatinine	SRto	Pt	Urine	Qn		m In
45086-8	Creatinine and Glomerular filtration rate.predicted panel	Creatinine & Glomerular filtration rate.predicted panel	-	Pt	Ser/Plas	Qn		
85634-8	Creatinine 24 hour urine panel - 24 hour Urine	Creatinine 24 hour urine panel	-	24H	Urine	Qn		
70266-2	Creatinine in peritoneal fluid/Creatinine in serum	Creatinine.periton fld/Creatinine.serum	RelRto	Pt	Periton fld+Ser/Plas	Qn		{ra
70264-7	Creatinine in pleural fluid/Creatinine in serum	Creatinine.plr fld/Creatinine.serum	RelRto	Pt	Ser/Plas+Plr fld	Qn		{ra
82807-3	PhenX - serum creatinine assay for kidney function protocol	PhenX - serum creatinine assay for kidney function nmtnonl	-	Pt	*Patient	-	PhenX	
82811-5	PhenX - urinary creatinine assay for kidney function protocol	PhenX - urinary creatinine assay for kidney function nmtnonl	-	Pt	*Patient	-	PhenX	
34206-3	11-Deoxycortisol/Creatinine [Molar ratio] in Urine	11-Deoxycortisol/Creatinine	SRto	Pt	Urine	Qn		ur In
40812-0	11-Hydroxyandrosterone/Creatinine [Mass Ratio] in 24 hour Urine	11-Hydroxyandrosterone/Creatinine	MRto	24H	Urine	Qn		m

LOINC	LongName	Component	Property	Timing	System	Scale	Method	ex
39802-4	Creatinine in dialysis fluid/Creatinine in serum or plasma	Creatinine dial fld/Creatinine ser_plas	RelRto	Pt	Dial fld+Ser/Plas	Qn		m
70266-2	Creatinine in peritoneal fluid/Creatinine in serum	Creatinine.periton fld/Creatinine.serum	RelRto	Pt	Periton fld+Ser/Plas	Qn		{ra
70264-7	Creatinine in pleural fluid/Creatinine in serum	Creatinine.plr fld/Creatinine.serum	RelRto	Pt	Ser/Plas+Plr fld	Qn		{ra
45066-8	Creatinine and Glomerular filtration rate.predicted panel	Creatinine & Glomerular filtration rate.predicted panel	-	Pt	Ser/Plas	Qn		
1728-5	Adenosine monophosphate.cyclic/Creatinine [Mass Ratio] in Serum or Plasma	Adenosine monophosphate.cyclic/Creatinine	MRto	Pt	Ser/Plas	Qn		ng
44789-6	Amylase and Creatinine clearance panel - Urine and Serum or Plasma	Amylase & Creatinine clearance panel	-	Pt	Urine+Ser/Plas	Qn		
1810-1	Amylase/Creatinine [Mass Ratio] in Serum or Plasma	Amylase/Creatinine	MRto	Pt	Ser/Plas	Qn		ug
1811-9	Amylase/Creatinine renal clearance [Ratio] in 24 hour Urine and Serum or Plasma	Amylase/Creatinine renal clearance	Ratio	24H	Urine+Ser/Plas	Qn		
30077-2	Amylase/Creatinine renal clearance [Ratio] in Urine and Serum or Plasma	Amylase/Creatinine renal clearance	Ratio	Pt	Urine+Ser/Plas	Qn		%
2048-7	Carnitine/Creatinine [Mass Ratio] in Serum or Plasma	Carnitine/Creatinine	MRto	Pt	Ser/Plas	Qn		
2160-0	Creatinine [Mass/volume] in Serum or Plasma	Creatinine	MCnc	Pt	Ser/Plas	Qn		m
44784-7	Creatinine [Mass/volume] in maximum Serum or Plasma	Creatinine	MCnc	Stdy*max	Ser/Plas	Qn		m
35203-9	Creatinine [Mass or Moles/volume] in Serum or Plasma	Creatinine	MSCnc	Pt	Ser/Plas	Qn		
14682-9	Creatinine [Moles/volume] in Serum or Plasma	Creatinine	SCnc	Pt	Ser/Plas	Qn		ur



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LOINC	LongName	Component	Property	Timing	System	Scale	Method	ex
2160-0	Creatinine [Mass/volume] in Serum or Plasma	Creatinine	MCnc	Pt	Ser/Plas	Qn		m
44784-7	Creatinine [Mass/volume] in maximum Serum or Plasma	Creatinine	MCnc	StdY*max	Ser/Plas	Qn		m
40251-1	Creatinine [Mass/volume] in Serum or Plasma --1.5 hours post XXX challenge	Creatinine^1.5H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39956-8	Creatinine [Mass/volume] in Serum or Plasma --1.5 hours pre XXX challenge	Creatinine^1.5H pre XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39970-9	Creatinine [Mass/volume] in Serum or Plasma --10 hours post XXX challenge	Creatinine^10H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39971-7	Creatinine [Mass/volume] in Serum or Plasma --12 hours post XXX challenge	Creatinine^12H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39972-5	Creatinine [Mass/volume] in Serum or Plasma --16 hours post XXX challenge	Creatinine^16H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39973-3	Creatinine [Mass/volume] in Serum or Plasma --18 hours post XXX challenge	Creatinine^18H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
40258-6	Creatinine [Mass/volume] in Serum or Plasma --1 day post XXX challenge	Creatinine^1D post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
40250-3	Creatinine [Mass/volume] in Serum or Plasma --1 hour post XXX challenge	Creatinine^1H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39957-6	Creatinine [Mass/volume] in Serum or Plasma --1 hour pre XXX challenge	Creatinine^1H pre XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
40253-7	Creatinine [Mass/volume] in Serum or Plasma --2.25 hours post XXX challenge	Creatinine^2.25H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
40254-5	Creatinine [Mass/volume] in Serum or Plasma --2.5 hours post XXX challenge	Creatinine^2.5H post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m
39974-1	Creatinine [Mass/volume] in Serum or Plasma --2 days post XXX challenge	Creatinine^2D post XXX challenge	MCnc	Pt	Ser/Plas	Qn		m

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Local Term

Mapped to: _____ Name: _____ Local Term Details

OBR-4 Code: _____ OBX-3 Code: _____ Units: _____ Sample Values: _____ Limit to Default Specimen: _____

View:  All Search 

Show Words Propose Term Clear Inputs Reset Limits Standard Search Common Labs US

Grid	Tree																Lab Terms Only		
R...	Score	LOINC	Component	Property	TI...	System	Scale	Method	ExU...	ExU...	ExU...	ComMaps	Class	ComInst	LongName	ShortName	T		
1	6.0669	14958-3	Albumin/Creatinine	MRto	24H	Urine	Qn	Detection limit...	mg/...	mg/...	1979	1979	1	CHEM	1	Microalbumin/Creatinine [Mass Ratio] in 24...	Microalbumin/Creat 24h Ur	1	Both
2	6.0669	14959-1	Albumin/Creatinine	MRto	Pt	Urine	Qn	Detection limit...	mg/...	mg/...	212	212	12	CHEM	2	Microalbumin/Creatinine [Mass Ratio] in...	Microalbumin/Creat Ur	1	Both
3	6.0669	14115-0	Collagen crosslinked N...	SRto	Pt	Urine	Qn		nmol...	umol...	1140	1140	10	CHEM	8	Collagen crosslinked N...	Collagen NTx/Creat Ur-sRto	1	Both
4	6.0669	2159-2	Creatinine	MCnc	Pt	Amnio fld	Qn		mg/dL	mg/dL	1908		8	CHEM	5	Creatinine [Mass/volume] in Amniotic fluid	Creat Amn-mCnc	1	Both
5	6.0669	38483-4	Creatinine	MCnc	Pt	Bld	Qn		mg/dL	mg/dL	283		11	CHEM	5	Creatinine [Mass/volume] in Blood	Creat Bld-mCnc	1	Both
8	6.0669	20624-3	Creatinine	MCnc	24H	Urine	Qn		mg/dL	g/L;...	1978		12	CHEM	6	Creatinine [Mass/volume] in 24 hour Urine	Creat 24h Ur-mCnc	1	Both
11	6.0669	2162-6	Creatinine	MRat	24H	Urine	Qn		g/...	g/24 H	445		123	CHEM	11	Creatinine [Mass/tme] in 24 hour Urine	Creat 24h Ur-mRate	1	Both
9	6.0669	2161-8	Creatinine	MCnc	Pt	Urine	Qn		mg/dL	g/L;...	161		245	CHEM	14	Creatinine [Mass/volume] in Urine	Creat Ur-mCnc	1	Both
10	6.0669	35674-1	Creatinine	MCnc	XXX	Urine	Qn		mg/dL	g/L;...	359		6	CHEM	1	Creatinine [Mass/volume] in unspecified...	Creat 7Tm Ur-mCnc	1	Both
7	6.0669	2160-0	Creatinine	MCnc	Pt	Ser/Plas	Qn		mg/dL	mg/dL	1		113	CHEM	14	Creatinine [Mass/volume] in Serum or Plasma	Creat SerPl-mCnc	1	Both
6	6.0669	12190-5	Creatinine	MCnc	Pt	Body fld	Qn		mg/dL	mg/dL	1234		13	CHEM	8	Creatinine [Mass/volume] in Body fluid	Creat Fld-mCnc	1	Both
12	6.0669	13451-0	Creatinine dialysis fluid...	VRat	Pt	Dial...	Qn		mL/...	mL/...	398	398		CHEM		Creatinine dialysis fluid clearance	Creat Cl Dial fld+SerPl...	1	Both
13	6.0669	2164-2	Creatinine renal clearance	VRat	24H	Urine+Ser/P...	Qn		mL/...	mL/s...	586	586	51	CHEM	12	Creatinine renal clearance in 24 hour	Creat Cl 24h Ur+SerPl...	1	Both
14	6.1086	35591-7	Creatinine renal...	VRat	Pt	Ser/Plas	Qn	Cockcroft...	mL/...	mL/...	303	303	2	CHEM	2	Creatinine renal clearance predicted by...	Creat Cl predicted SerPl C...	1	Observation
15	6.1086	12195-4	Creatinine renal...	ArVRat	24H	Urine+Ser/P...	Qn		mL/...	mL/s...	1269	1269	24	CHEM	6	Creatinine renal clearance/1.73 sq M in 24...	Creat Cl/1.73 sq M 24h...	1	Observation
16	6.0669	33914-3	Glomerular filtration...	ArVRat	Pt	Ser/Plas	Qn	Creatinine...	mL/...	mL/...	26	26	49	CHEM	12	Glomerular filtration rate/1.73 sq...	GFR/BSA,pred SerPl...	1	Both
17	6.1086	48643-1	Glomerular filtration...	ArVRat	Pt	Ser/Plas	Qn	Creatinine...	mL/...	mL/...	30	30	55	CHEM	8	Glomerular filtration rate/1.73 sq M...	GFR/BSA pred.black SerPl...	1	Observation
18	6.1086	48642-3	Glomerular filtration...	ArVRat	Pt	Ser/Plas	Qn	Creatinine...	mL/...	mL/...	29	29	40	CHEM	2	Glomerular filtration rate/1.73 sq M...	GFR/BSA pred.non black...	1	Observation
19	6.0669	2890-2	Protein/Creatinine	MRto	Pt	Urine	Qn		mg/...	mg/...	509	509	58	CHEM	11	Protein/Creatinine [Mass Ratio] in Urine	Prot/Creat Ur	1	Both
20	6.0669	3097-3	Urea nitrogen/Creatinine	MRto	Pt	Ser/Plas	Qn		mg/...	mg/...	55	55	32	CHEM	8	Urea nitrogen/Creatinine [Mass Ratio] in...	BUN/Creat SerPl	1	Both

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S&I Framework Initiative

- **December 10, 2013 - Meeting announcement**
- **Launch – January 8, 2014**
- **Charge –**
 - To provide a common order code value set* for the Laboratory Orders Interface and Electronic Directory of Services Implementation Guides.
- **Webinars held weekly from January 8, 2014 until March 4, 2015**

*A value set is a collection of enumerated codes.

Key Deliverables

- **aLOINC Common Orders Value Set**
 - Contains 1377 codes for single analytes
 - Contains 157 codes for panels
- **Input to Regenstrief on guidance for comparing user panels to LOINC® panels**
 - Provides some flexibility to laboratories that change tests ordered in a panel
 - Decreases the number of new tests codes requested
- **Recommendations to ONC for using LOINC for laboratory orders**
- **Recommended content updates for Regenstrief based on review of laboratory order LOINC codes**

Data Reviewed

- **aLOINC Common Order Code Value Set was developed by wiki members based on a comparison to LOINC's Top 2000 Result Codes and Top 300 Order Codes**
- **Indiana Network for Patient Care (INPC) laboratory order data analyzed by Regenstrief**
- **MarketScan commercial carrier and Medicare data base of LOINC result codes analysis**
- **Review of tests listed in the directory of services for four reference laboratories**

Data Analysis

- **Volume data for a national sample was not obtainable**
- **In the 2 datasets with volume we reviewed, fewer than 200 different tests made up 95% of the total volume**
- **If a national sample of volume data were obtained, it would likely reflect significantly more test codes than the number of analytes.**

Data Analysis ²

- **A comparison of the two data sets demonstrated that the codes did not match**
 - Different methods
 - Different measurements
 - Selection varies among coders

Lessons Learned

- **Laboratories often customize panels for their clientele, LOINC is not flexible enough to account for additions or deletions from a panel, resulting in requests for new codes**
- **For a single analyte test, the same code is used for test ordering and resulting**
- **The LOINC code does not uniquely identify panels from single analytes**

Lessons Learned (continued)

- **Providers order by test name or analyte, which has to be mapped to many codes**
- **Anatomic pathology reporting model needed**
 - Current model has several codes referring to one test (specimen collection, gross observation, interpretation, etc.)
 - Does not meet the definition of a panel if only one analyte is involved

Summary of Preliminary Recommendations

- Follow best practices when comparing laboratory data to the *a*LOINC Common Order Value Set
- A major barrier to developing an empirical laboratory order value set is lack of national data
- Manufacturers could provide the order and result reporting codes in the package insert

Summary of Preliminary Recommendations ²

- **Laboratories need help selecting the appropriate test code from the 46,000+ tests in LOINC**
 - Most laboratories lack coding expertise
 - Expertise in BOTH coding and laboratory practices
- **Standardization efforts should include clinical and public health laboratory tests**
- **A new format is needed to address multiple tests ordered on one analyte (anatomic pathology and molecular testing)**

Next Steps

- Draft of the final report and recommendations
<http://wiki.siframework.org/a+LOINC+Order+Code+Homepage>
- Accepting comments until noon April 22, 2015
- Final draft will be posted April 27, 2015
- Last wiki call to discuss and finalize the report April 29, 2015 at 3:00pm
<https://siframework1.webex.com/siframework1/onsite/g.php?t=a&d=665254609>

Dial In: 1-650-479-3208

Access code: 665 254 609



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